Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

LIBRARY

MONTHLY REPORT OF THE OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

FEB 1925

GOVERNMENT PRINTING OFFICE

S—6150

RS
Reports
Monthly

MONTHLY REPORT

OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

February, 1925

Foreword

THE RESEARCH SPIRIT IN SCIENTIFIC INSTITUTIONS

By B. Youngblood, Director, A. & M. College, Texas

The research spirit is a sort of healthful contagion which animates the real investigator and pervades all truly scientific institutions. It is an enthusiasm for original inquiry, enlivened and made effective by individual genius. It is realized that not every man possessing an inquisitive turn of mind is a successful investigator; yet, ability would lie dormant were it not enshrined in a scientific spirit.

The scientist is happiest and has the best chances for a successful career who is imaginative enough to conceive a friendly spirit ever attending him and guiding him in his work. This may be called the Spirit of Research. It is the spirit which leads students to ask questions and make inquiries for themselves and which moves teachers to lead their students into unexplored fields of knowledge wherein prospecting is often well rewarded. It is the spirit which enables one to perceive problems of importance, to attack them with vigor and enthusiasm, and to interpret results with discretion. It is the spirit which prompts one to frankly ask for guidance when the trail becomes dim and moves his fellows to render aid and encouragement when one is in need of it. A spirit of research, moreover, is one of philanthropic impulse. It causes one to devote himself more seriously to the problems pertaining to the well being and happiness of mankind than to the satisfaction of his own requirements.

The pioneers in scientific research lived largely to themselves, out of touch with the world and were little known except by their discoveries or inventions, and, even then, often, not until many years after their time. The modern idea of "playing to the galleries" was unknown to them. They serve, in many respects, as an example worthy of emulation. Their story appeals strongly to the popular imagination because of their unusual and unselfish devotion to their chosen lines of inquiry. They worked in improvised and inexpensive laboratories with inadequacy of equipment. Many of them made their studies practically without funds either for their work or for their own subsistence. As a rule, they spent their lives on but a single problem.

Modern scientists have vastly increased the number of discoveries and inventions, as one should have expected on considering their superior training, equipment, and environment. It might prove helpful to the cause, however, if attention were called to some of the criticisms made by certain persons having the general welfare at heart. The following are some of the more common criticisms - the merits of which need not be discussed just here.

1. Many research men are considered lazy. Inasmuch as it is impossible for the layman to know just when the scientist is doing his best work or is idle, how can he judge the scientist who often does best work by merely thinking soundly, shut up in his room by himself? It behooves the scientist, however, so to conduct himself as to make it obvious that he is a busy man. If the public sees one living example of a lazy scientist, it is likely to conclude that all scientists are lazy. This is unfair to the scientist, but it is a human defect, which can only be remedied in a human way.

2. There is also a popular notion that scientists are "cranky." There is little doubt but that some scientists are "cranky," but it would be difficult to establish the fact that scientists are any more "cranky" than men of other professions. The fact is that the world has an ample number of pigeon holes in which it automatically places its cranks of every kind. The scientific crank may be found under the "S's." He pays the penalty of being a crank along with all the rest of his kind. Most scientific men, however, are not cranks. On the other hand, they are highly essential to the element of accuracy in the statement of natural truths. It may be said of most scientific men that, instead of being cranks, they are tediously CORRECT. The man who is correct is quite commonly called a crank by the man who wants anything but the facts in a case in which he is concerned. Still, it may be said of some perfectly sound scientists that they are correct to an alarming extent - to the extent, sometimes, of making enemies when they might as easily make friends. Some scientists have been known to be insultingly correct. Would it not be better for the cause if these men, instead, would be pleasant in all their precision?

3. Another popular criticism of scientists is that they are too individualistic and self-centered. In their defense, it may be said, however, that the individualistic genius, the mutating type of man, is the fountain head and source of the greater part of all that has been accomplished in discovery and invention throughout history. On the other hand, it is considered that scientific men, the mutants, can be of greatest service to the world if they will display a broad spirit of liberality towards their contemporaries in the scientific field.

The modern spirit of research answers every criticism. It is the intelligent, energetic, friendly spirit of scientific men joining hands, when to do so is mutually advantageous, in the accomplishment of certain results. It seems that the war did more to bring scientists together, to

get them to consulting one another, and displaying the "I-trust-you" type of spirit, than anything that has ever occurred. Within the institution, it is the hope of the administration that problems affecting our agriculture will be taken up from the viewpoint of various specialists. This means that there must be cooperation in the work of the several specialists. It does not mean, however, that there will be any decline in the need for individual initiative. It means that the abilities of the several specialists may be coordinated into a general, well-rounded-out line of projects which will prove more valuable, with the results more quickly available than could otherwise possibly be the case.

PHOTOGRAPHY IN RELATION TO THE NATURAL SCIENCES

Bagshaw, W. Elementary photo-micrography. 71 p. illus. London, Iliffe and Sons, Ltd., 1902.

Brownell, L. W. Photography for the sportsman naturalist. 311 p. illus. New York, Macmillan Co., 1904. (American Sportsman's Library.)

Dugmore, A. R. Nature and the camera. 126 p. illus. New York, Doubleday, Page and Co., 1902.

Eastman Kodak Co. Photo-micrography, an introduction to photography with the microscope. 7th ed. 35 p. illus. Rochester, N. Y., Eastman Kodak Co., 1922.

English, D. Photography for naturalists. 131 p. illus. London, Iliffe and Sons, Ltd., 1901.

McFarland, J. H. Photographing animals. illus. (Photo-Minature v. 4, (1902) no. 39, p. 105-147.)

McFarland, J. H. Photographing flowers and trees and the use of natural forms in decorative photography. 93 p. illus. New York, Tennant and Ward, 1911.

Pringle, A. Practical photo-micrography by the latest methods. 177 p. illus. New York, The Scovill and Adams Co., 1890.

Slingerland, M. V. Insect photography. (U. S. Dept. Agr., Div. Entomology, Bulletin no. 46 (1904), p. 5-14.)

Snell, F. C. The camera in the fields, a practical guide to nature photography, 256 p. illus. London, T. Fisher Unwin, (1904).

Walmsley, W. H. A B C of photo-micrography. A practical handbook for beginners. 155 p. illus. New York, Tennant and Ward, 1902.

THE EDITOR'S OFFICE

Why is an editor?

This may prove a rather difficult question to answer. Yet if the editor himself cannot answer it, who shall?

Said a man next door, at the conclusion of a tirade upon some vexing neighborhood happenings: "What a beautiful world it would be if there were no people in it!" Similarly the research man may be inclined in moments of frenzy to cry: "How joyous a thing to write reports if there were no readers (and no editors)!"

> "And only the Master shall praise us, and only the Master shall blame;
> And no one shall work for money, and no one shall work for fame;
> But each for the joy of the working, and each, in his separate star,
> Shall draw the Thing as he sees It for the God of Things as They Are!"

And this is a pleasant trend of thought for an early spring afternoon, while the interlude is permitted to last. Eventually, however, the feet must come down from the window sill, and the fact be faced that His Excellency General Reader is hard boiled and heavy of comprehension, literal, crass, suspicious. He worships not the God of Things as They Are, but the God of Things That I Have Personally Seen, Heard, Smelt, Felt, and Tasted; and he hales from the valley of the Big Muddy. Briefly, he must be shown.

He must be led, personally conducted from the place where he stands to the vista you have prepared for him. His progress is step by step, never by leaps or intuitive flights.

Consequently, the forester who expects the general reader to assume as a matter of course what he as a scientist assumes, or to supply his own intermediate steps in an elliptical argument, is as one who beats the air. His reader is not with him. He has realized what perhaps was his secret wish, to have no readers to consider. He has achieved that monument of ineffectiveness, a printed report that nobody reads.

The editor's true function is, of course, to protect the author from the crassness of his reading public. It is a necessity for him to be more heavy of comprehension than the reader, more doubting and suspicious, more literal; while at the same time he endeavors to remain so surely in sympathy with the author that no nuance of the latter's meaning escapes him; so sympathetic, indeed, that he can on occasion detect the author's meaning when the author has through some inadvertence left the meaning out of the words altogether.

Only by so doing and being can the editor make certain that the publication in question will go out as proof against destructive criticism as any scientific publication can hope to be. Then, as the author improves in his ability to make himself understood to the general reader, and in his scrupulous care that every step of his literary work is performed as honestly and thoroughly as his field or laboratory work, the editor's share in the undertaking diminishes. The author becomes his own editor. This process may, in deference to this particular audience, be expressed in a cabalistic formula as follows:

$$\frac{r}{R} = \frac{pd = e}{E}$$

Letting r represent the printed report; R, the reader; pd, the preliminary presentation of the data; e, the editorial changes; and E, the editor, it is easy to see that with R a constant and e a constantly diminishing factor, the equation would finally and happily resolve itself into:

$$pd = r$$

And this, all will agree, is a consummation devoutly to be wished for.

DENDROLOGY

Distribution of Tree Seeds

Kurile Larch

Through the courtesy of Dr. A. F. Tigerstedt, Koria Station, Finland, approximately one pound of the seed of Larix dahurica japonica was recently received for trial. The seed is from trees grown in Finland, where this variety and its species are being tested in forest plantations. The seed has been divided among the following stations, a small amount of seed being retained for trial in the District of Columbia:

Letchworth Park Forest and Arboretum, New York.
Appalachian Forest Experiment Station, North Carolina.
Pacific Northwest Forest Experiment Station, Oregon.
Monument Nursery, Colorado.
Priest River Experiment Station, Montana.
Northeastern Forest Experiment Station, Massachusetts.

This larch, locally called Kurile Larch from the fact that it is confined to the Kurile Islands, northern Japan, is a variety of Larix dahurica, which is widely distributed in northeastern Asia, and occasionally grown in northern United States and Canada. The Japanese tree attains a height of from 40 to 70 feet and a diameter of from 12 to 20 inches. It is said to grow rapidly in height during the first 25 or 30 years and to develop a broad pyramidal crown. Dr. Heinrich Mayr introduced this larch to Europe in 1888 and in 1894 sent seed to the Arnold Arboretum (Massachusetts) where it is perfectly hardy.

Hardy Eucalypts

News of the Service's trial of Eucalyptus coriacea alpina, the "Snow Gum," in the United States as capable of enduring a colder climate than other eucalypts so far tried here, reached Mr. G. Weindorfer, Cradle Mountain, Tasmania, some months ago. To help us in our search for hardy sorts of eucalypts Mr. Weindorfer voluntarily sent small quantities of seed of Eucalyptus coccifera, E. amygdalina, E. obliqua, and of a hybrid, E. gunnii x muelleri. He claims for these that they are able to thrive in colder climates than the "Snow Gum." While Eucalyptus amygdalina, E. obliqua, and E. coccifera have been grown in California for some years, they are not generally believed to be specially frost-resistant. However, the strains of trees from which the seed just received came may, as is the case with many other forest trees, have acquired by long growth under severe climatic conditions far greater resistance to cold than is possessed by other strains of the same species.

The seed of these eucalypts has been distributed for trial to

Appalachian Forest Experiment Station, North Carolina.
Pacific Northwest Forest Experiment Station, Oregon.
Oregon State Agricultural College, Corvallis, Oregon.

A trial of the seed will also be made here in Washington.

Naming the Nut Collection of the Office of Pomology

The Office of Pomology, Bureau of Plant Industry, maintains a large collection of the fruits of our native nut-bearing trees, largely of the genera Hicoria and Juglans. The formation of this collection was begun some thirty or thirty-five years ago and has grown with the expansion of the Department's work in nut culture. The collection constitutes a permanent record of the many different forms of nuts produced by species in the wild state and those grown under cultivation. Properly identified this collection serves as a reference library, as it were, in meeting the demands for the identification of fruits and nuts sent to the Office by numerous correspondents. The work of naming this collection is now nearly completed.

Advice to the Bureau of Standards on the Care of Their Trees

At the request of the Director of the Bureau of Standards, the grounds of the Bureau were recently examined, in company with the Bureau staff, for the purpose of pointing out definitely the need of a uniform policy in preserving and treating the trees now growing in the grounds, mostly of original forest growth. Up to the present time practically no attention has been given to the proper maintenance and care of the many valuable deciduous trees growing there; in fact, much needless abuse and destruction of useful trees could have been avoided, had a plan been worked out several years ago when the new buildings were being placed. Apparently it has been no one's job to develop and care for tree growth in keeping with the advance of the extensive building operations there.

Under suggestions made the Director now has a responsible organization and plan of procedure for the future care and development of the Bureau grounds' trees.

This plan includes, in order to develop a more consistent adornment of the Bureau grounds than is afforded by the natural growth of deciduous trees, the planting of certain conifers, particularly to hide a number of unsightly features produced by ill-advised grading, now impracticable to change.

FOREST EXPERIMENT STATIONS

Washington

Last August a letter from the Branch called the attention of the stations to the danger of allowing reports dealing with subjects of considerable importance and interest to become buried in the files without publication. The stations were asked to review systematically their files of unpublished reports with the object of submitting with the proper recommendations such of the progress reports as are or can be made suitable for publication with comparatively slight effort. A real effort should be made to make available the results of investigations now in the form of old progress reports, not only to overcome the criticsm that Research is burying valuable material but because it is a good thing for the development of forestry, for the research organization, and for the personal standing of the investigator. It is hoped the stations will not let the present office season go by without giving this their attention.

The supply depot has called our attention to the fact that there has been no request from the forest experiment stations for Form 279, physical survey. The filling out of this form, drawn up at the suggestion of two of the stations and approved by the men at Madison, should assist materially in making certain that all the essential points, required later as information upon sample plots, are secured when the plots are established. It also provides for a continuous record and history of these plots and continuous observation points.

There has been some correspondence with several of the stations lately regarding the possibility of our men taking further educational training for advanced degrees. The policy of the Department is to encourage its members in this practice whenever advantageous to the work of the Department. This may be done either on leave of absence without pay or on the basis of part-time employment. Our men will probably be most interested in the latter alternative. A case has just been approved by the Secretary affecting one of the stations. Here the individual secured a fellowship, the Department making up the difference in salary. The work to be done in this case is upon an approved project of the station, and it is expected that full time will be given to it. The additional requirements for the degree are being met in absentia and in outside hours. The institution's faculty and laboratory facilities are peculiarly adapted to assist in making a material contribution to the fundamental side of this project.

The situation with regard to legislation affecting forest experiment stations in the session of Congress recently closed found three bills introduced and one passed. The bill introduced by Senator Pepper to provide a station for the Allegheny region did not come to a vote. The bills for a California station introduced in the Senate by Senator Shortridge and in the House by Representative Lineberger, also failed. Senator Johnson's bill for a California station, however, passed Congress and has been signed by the President. Unfortunately, the Johnson bill merely authorizes the establishment of a forest experiment station without providing the necessary funds.

The Departmental appropriation bill for 1926 carries the same sum for silvical investigations as that of the present year, plus the increases given us under the reclassification act. This will mean that station allotments for next year will of necessity be substantially as now, with relatively minor adjustments between stations.

Munns returned to Washington late in the month after spending more than six weeks in the South, of which one week was spent at the Appalachian Station. Visiting the three branch stations, Munns covered systematically all the work the Southern Station is now doing. He also assisted the Southern Station in initiating the extensive survey work in the cutting, fire and turpentine studies. At Asheville, Munns attended the first meeting of the Appalachian Advisory Council.

Weidman is still on detail in the Washington office helping out on the mass of work that requires attention in the Office of Experiment Stations.

Show's detail to Washington continued through February and will through most of March. At the present time he is working with the editors upon the revision of his Silvicultural Requirement report.

NORTHEASTERN FOREST EXPERIMENT STATION

Continued progress can be reported on all of the principal station projects. Behre has nearly completed a manuscript for publication on form class, taper curves, and volume tables and their application. The application part of the article is illustrated by material dealing with western yellow pine which he secured before joining the station. Statistical analysis of the errors in the application of the form class volume tables to western yellow pine indicates that the standard error in estimating the volume of individual trees will be ± 10% and the standard error in estimating the volume of entire stands ± 2%.

Good progress is being made in placing the data secured in Westveld's spruce methods of cutting study on punch cards for subsequent analysis with the tabulating machine. Greenhouse experiments have been started on this study to determine whether there is any difference in the germination of twelve different species of conifers and hardwoods in the four characteristic layers of soil found on the permanent sample plots established on the White Mountain National Forest last summer. Another greenhouse experiment is under way to determine by actual germination tests whether any viable seed of tree species is normally stored in the duff. So far, there is a vigorous growth of weeds, but birch is the only tree species to have made its appearance.

Meyer's spruce yield study has reached the point where the plots have been divided into site classes on the basis of height, and he is now working with basal areas. Meteorological data for the years 1921 and 1922 were forwarded to the Washington office to be incorporated in the punch cards covering the study of forest fire statistics in Massachusetts.

Westveld addressed a meeting of Massachusetts forest firewardens at Worcester, and Behre a similar meeting at Springfield. Behre and Meyer both took in the winter meeting of the New England Section of the Society of American Foresters at Boston. Dana was appointed a member of the agricultural committee of the Boston Chamber of Commerce, but was prevented by illness from attending the first meeting of the committee on February 11. The committee plans to prepare a comprehensive report on the agricultural situation throughout New England, including constructive suggestions for the improvement of present conditions.

Dana attended the meetings of the American Paper and Pulp Association and of its Woodlands Section in New York the first week of the month. The Woodlands Section, which has been comparatively inactive during the past year, showed decided signs of renewed life, and definite plans were made for increasing its activities. A meeting of the subcommittee for the Northeastern States of the Advisory Committee of the Pulp and Paper Industry to the Department of Agriculture was held in New York on February 5. Three of the five members of the committee - Messrs. Bragg, Ostrander, and Sisson - were present and indicated a keen interest in the activities of the Experiment Station, particularly with reference to its relations to the paper industry. The subcommittee requested the station to submit to the Woodlands Section definite statements as to data which it would like to have collected by the Section, with specific instructions as to how it should be secured. It was felt that a large amount of experimental data could be secured in this way from pulp and paper companies, particularly those employing foresters, and that these data would not only be valuable both to the station and to the companies concerned, but that work of this kind would have a very distinct educational value. Tentative arrangements were also made to ship to the Forest Products Laboratory a carload of northern hardwood logs for pulping experiments with the modified process which appears so promising with such southern hardwoods as red gum.

The winter meeting of the Northeastern Forest Research Council was held at the Yale Forest School at New Haven, Connecticut, on February 7. The station program for the coming year was gone over and approved as submitted, with the suggestion that major emphasis for the activities of the station proper be placed on five projects - (1) methods of cutting in pure and mixed spruce and fir stands, (2) growth and yield of spruce and fir in the Northeast, (3) development of universal taper and volume tables, (4) analysis of forest fire statistics, and (5) prediction of fire conditions. No specific recommendations were made regarding projects in the fields of forest entomology and forest pathology because of the uncertainty as to what funds would be available for these purposes. Various details of cooperation between the Experiment Station and other forest research agencies in the Northeast were considered, and the securing of cooperative funds from State foresters, timberland owners' associations, and others for the financing of fire studies was strongly urged. Action was taken to encourage the States to pass such legislation and appropriations as may be necessary to make the Clarke-McNary Act fully effective and to endorse various other matters of State legislation and appropriation. The present officers of the council were re-elected. It was voted to hold the next meeting on June 22-24, 1925, at Berlin, New Hampshire, and at Mr. Brown's camp at Cupsuptic, Maine.

LAKE STATES FOREST EXPERIMENT STATION

The month was not marked by any striking developments. Aside from the work on the three main projects, the station has revised the investigative program for next year in the light of the discussion and suggestions offered at the conference of the Advisory Committee.

Demmon of the Lake States Forest Experiment Station, together with Probstfield of the Cloquet Experiment Station, spent a large part of the month in the field at Cass Lake in taking measurements for volume tables of aspen and birch. The character of the forest in which the cuttings are taking place confined the work to stands 70 years old and to comparatively large trees cut for boxboard material. Measurements of 157 individual trees were secured and 7 yield plots laid out and sample trees cut. The work needs to be extended to stands of younger age classes and cuttings of trees utilized for pulp wood so as to secure data for cordwood volume tables. Demmon is now working up the field data secured and this will be made available immediately for use by the Minnesota National Forest.

CLOQUET FOREST EXPERIMENT STATION

The time of the technical force of the station was spent largely on working up planting data, studying the rate of establishment of stands on cut-over lands, and an analysis of the material gathered as a basis for the working plan for the station area and an analysis of the wind-break statistics.

During the greater part of the month, Probstfield was in the field, together with Demmon studying volume of yield in birch and popple stands on the Cass Lake forest. Lack of snow made it impossible for them to get as much volume as was hoped because the operators had ceased cutting.

The cutting of timber on the station area progressed very nicely during the past month considering the unfavorable condition of the weather. It will only be possible to cover half the area marked for cutting this winter. From this area approximately 70,000 board feet of logs and 25 cords of pulp wood have been removed and hauled to town. The dead and down on this area netted about 100 cords of firewood. This firewood is a mixture of tamarack, jack pine, birch and popple. A rough calculation shows that the cutting operation of the winter will yield the station a net profit of almost $1000. With more favorable logging conditions in succeeding years it is hoped to increase the net profit.

APPALACHIAN FOREST EXPERIMENT STATION

The Appalachian Forest Research Council held its initial meeting at the Battery Park Hotel, Asheville, on February 13 and 14. The meeting was called to order by State Forester J. S. Holmes of North Carolina. Mr. W. D. Tyler, of the Clinchfield Coal Corporation, Dante, Va., was elected president. The program began with a brief paper by Colonel Joseph Hyde Pratt on "The Need of Forest Research in the Southern Appalachian Region," and included addresses by State Foresters R. S. Maddox, of Tennessee, Chapin Jones of Virginia, and J. S. Holmes of North Carolina. Major George L. Wood of Baltimore outlined the forestry situation in Maryland. A "Survey of State Forestry Legislation in the Appalachian Group of States under the Provisions of the Clarke-McNary Forestry Law" was presented by District Forester Evan Kelley. E. H. Frothingham discussed the problems of forest research in the Southern Appalachian region, with particular reference to the work of the Appalachian Station. The development of southern woods for paper making was the subject of an interesting address by J. D. Rue of the Forest Products Laboratory. W. J. Damtoft, forester of the Champion Fibre Company, Canton, N. C., put before the council the question of whether there should not be an agent appointed who would act as an intermediary between the various scientific agencies, on the one hand, and the industrial operators, on the other. These papers brought out a good deal of discussion, the subjects of chestnut blight and forest taxation receiving special attention.

The following committees were appointed: Executive, Resolutions, Legislative, Coordination, Growth Investigation, and Fire Investigation. All except the executive and legislative committees met and reported to the council before adjournment.

In its resolutions the council approved the program of the Appalachian Forest Experiment Station, recommended that the other forestry agencies in the region cooperate with the station in the development of this program, and urged that the budget allotment for the station for the fiscal year 1927 be made at least double the present allotment, to provide for an adequate enlargement of the work. The resolutions endorsed the program for the acquisition of land for national forest purposes under the McNary-Woodruff bill; and for the support of the Clarke-McNary law the several States in the Appalachian region were urged to provide promptly the funds and legislation for the establishment of comprehensive State forest policies. The necessity for an early study of the tax situation in one of the Appalachian States, as provided for in the Clarke-McNary law, was called to the attention of the Forest Service.

Other resolutions urged the State forestry departments to secure complete and accurate fire records and the U. S. Weather Bureau to develop a forest fire weather prediction service adequate to meet the needs of the Appalachian forest region, and to cooperate with the Appalachian Forest Experiment Station in the forest fire studies conducted by the station. The council recommended strongly that the Department of Agriculture assign at the earliest possible date a forest pathologist and a

forest entomologist to conduct investigations in tree diseases and insect infestations in cooperation with the Appalachian Station. The necessity for extending the uses of and markets for chestnut affected by the blight, in order to avoid needless waste of this valuable timber, was also the subject of a resolution, which urged that this important matter be given attention by the U. S. Department of Agriculture, the Forest Service, and the State foresters in the Appalachian region.

Field trips through the Biltmore Estate plantations and to the Champion Fibre Company's pulp and paper mill and forest nursery were made at the conclusion of business on February 14. Before adjournment, invitations were extended to the council to hold its next meeting at Raleigh, N. C., and at Charleston, W. Va. It was felt that the next meeting should be held next fall.

Only two of the four members of the American Paper and Pulp Association's advisory subcommittee for the Appalachian Station were able to come to Asheville to attend the meeting of the subcommittee scheduled for February 12, so the program which had been prepared was combined with that of the Forest Research Council meeting.

Appalachian Section of the S.A.F. Adopts a Forest Type Classification

Forest types were the subject of a debate at the annual meeting of the Southern Appalachian Section of the Society of American Foresters, held at the Battery Park Hotel, Asheville, February 12. A classification recognizing 15 mountain, 6 Piedmont and 7 Coastal Plain cover types was presented as a result of two years work by a type classification committee consisting of E. H. Frothingham, W. J. Damtoft, J. S. Holmes, C. F. Korstian, and E. F. McCarthy. The program consisted of a paper by A.C. Shaw on the "Use of Forest Types in Forest Management Plans," and a discussion which was led by McCarthy. After a lively discussion the committee's report was accepted but referred to a committee instructed to carry out the publication of the forest types and receive and act upon any suggestions which might subsequently be offered for amendment.

Dr. Schenck Visits Asheville

The return of Dr. C. A. Schenck to the Asheville region after 12 years absence was made the occasion of auto trips through the Pisgah National Forest and the Biltmore Forest development, formerly portions of the Vanderbilt Estate and under management by Dr. Schenck as forester for the Estate. Supervisor Rhoades and various members of the station staff accompanied him on these trips, which were especially profitable on account of Dr. Schenck's familiarity with the original conditions under which the work was started by him. Dr. Schenck expressed himself as greatly pleased with the way the forest has developed following the preliminary operations.

Forest Fire Investigations

For the study of inflammability of the forest floor, the thermocouple-potentiometer apparatus belonging to the Pacific Northwest Experiment Station has been loaned to the Appalachian Station for use during the early spring. In a conference with District Forester Kelley, Assistant District Forester Evans, District Engineer Dort, and Supervisor Rhoades, which was held at the station, cooperative arrangements were made by which District 7 will supply additional apparatus for the study of the relation of weather to fuel dryness during the fall fire season. Preliminary plans for this work have already been drawn up by McCarthy.

A Forest Pathologist to be Assigned to the Station

In addition to continued investigations of the chestnut blight by the Bureau of Plant Industry, it is understood that the Bureau will assign a forest pathologist to the Appalachian Station July 1.

Visitors

The meetings of the Appalachian Forest Research Council and the Southern Appalachian Section of the Society of American Foresters brought many visitors to the station. Major Kelley and Mr. Evans were with us twice, returning to Asheville to take part in the two meetings. Mr. Munns of the Washington office also attended both meetings, and remained over to discuss with the staff the proposed investigative program for 1925. Other visitors included S. C. Sweeney of the West Virginia Pulp and Paper Company; Thomas W. Skuce, West Virginia extension specialist in forestry; Major George L. Wood of the R. E. Wood Lumber Company, and other members of the Appalachian Forest Research Council; Dr. Schenck; and Messrs. Averell and Tinker of the Southern Forest Experiment Station. The two latter visited the station in search of shortleaf pine yield study sample plots, several of which they were able to find in the neighborhood and in the station files.

The outstanding event of the month with us was the meeting of the Investigative Committee, which this year went with unusual thoroughness into a review of past work and a consideration of the entire field that lies ahead. The initial sessions occupied the entire days of February 3, 4, and 5, after which a meeting of a subcommittee on assignments occupied another full day, and that committee later reported back to the general committee. District Forester Granger acted as chairman of the committee, and Munger as secretary. All members of the staff attended the meetings; District Forester Flory of Alaska, Mr. Wells of the Weather Bureau, and Mr. Jacobson of the Research Department of the Western Forestry and Conservation Association, were also present a part of the time. The assembling of data for the report of the committee has taken considerable time since the meeting.

News material about the Investigative Program was prepared and given to four different trade journals in varied form. Munger wrote a review of Show's new bulletin - "The Role of Fire" - which was published in the February "Timberman." He gave a talk on the Experiment Station to the members of the U. S. D. A. Club at their monthly luncheon, and an informal talk to the field men of the cruising and timber brokerage firm of Brown & Brown on opportunities for a firm like that to give advice and service to its clients on fire protection and on the possibilities for continuous production, along with their straight cruising and logging engineering services.

February 24 and 25, Munger with J. F. Kummel of the District Office went with Mr. Walker of the Crown Willamette Paper Company to their logging operations on the lower Columbia River, where they are now planting wild stock on heavily burned logged-off land. They are not finding it as easy as expected to gather within convenient radius a large amount of wild stock. Each gatherer gets about 1000 spruce seedlings per day and each planter sets about 300 to 350 trees, but some of them are three feet tall. The roots of all the trees are being dipped in a chemical solution by a secret process of the foreman of the job to make their survival certain!

Mr. Barrett has prepared a list of the conifers of the world which are likely to grow at Wind River in the arboretum; it contains 169 species of which we have growing there now in sufficient quantity only 47.

Isaac has been putting in most of his time working up reports from field notes found in the Wind River files. A compilation of seven years records of a line of sample plots extending through cut-over and burned land across the Wind River Valley from green timber to green timber shows that satisfactory reproduction has become established roughly at the rate of one chain farther from green timber each year. Just how the seed was carried or stored and how long reproduction will continue to creep in at that rate is conjectural.

One of the major undertakings of this station this winter is the revision of the existing second-growth Douglas fir volume and yield tables. This is especially difficult because much additional data from different sources is to be incorporated in the revised tables. The work is further complicated because volume and yield tables are each to be separated in three site qualities according to the average height of the dominant trees - and the original data (2300 sample trees and 700 plots) does not show which trees are in the dominant crown class. To change to the new system of site classification would be a simple matter if some mechanical means of separating crown classes could be evolved so that the average heights of the dominant trees could be obtained. With a working basis of 414 sample plots and the measurements of 3171 trees of known crown classes, McArdle has foundiit possible to determine crown classes in Douglas fir by using a sort of empirical formula. The ratio between the basal area of the dominant crown class and the total basal area per acre he found to vary widely and apparently according to no definite law; the number of dominant trees in relation to the total number of trees per acre he found to be as poor an indication of crown classification. The method finally used was the ratio between the number of DBH classes of the dominant crown class and the total number of DBH classes. Irrespective of age, site quality, or area, the dominant and codominant crown classes were found to be 55 per cent of the total number of DBH classes represented in the stand. This is due to the fact that as the stands grow older, the number of DBH classes increase, and though there is a smaller number of DBH classes on poor sites than on good sites, the proportion - dominant to total - is practically the same. McArdle made exhaustive tests in an attempt to find some flaw in this method, but no defect could be discovered. Curiously enough, this system was found independent of density of stocking and worked as well in open-grown stands as in dense, and with one acre plots as accurately as with stands ten or twenty acres in size. It should be kept in mind, of course, that this method of mechanically determining crown class was evolved only for use with this old data, and has no connection with any other work or with any other species.

Platting the 1922 and 1924 Lightning Storm reports occupied a week of Simson's time. On a basis of storms reported, the Chelan had more than twice as many as any other Forest - between forty and fifty. This is as may be expected from the climate and topography. It is evident that on the whole the path of any one storm is quite short and the direction of movement largely governed by local winds. The Deschutes Forest though reporting only 14 lightning storms, registered the only fatality - one man and three horses September 2. By far the major portion of the storms occurred either August 15, 16 and 17, or September 7. September 7 was the worst single day. On that date the chain of storms extended all the way down the Cascades from the Canadian border to the California line.

Apparently a number of the lookouts did not take the matter of reporting lightning storms seriously, as in many cases the notes are so vague or incomplete that the report is valueless. A new form is in the process of designing that will, it is hoped, considerably increase the value of these reports.

Several days of Simson's time were spent in going over data on the static study and a Progress Report will be forthcoming next month. He attended the first day of the Mt. Hood and Santiam joint ranger meeting to take part in the discussion on weather and its influence on the behavior of fire. Some errors in methods of taking weather observations were ironed out and the application of relative humidity in fire control discussed. Considerable enthusiasm was displayed by the rangers and a very active interest in fire research evidenced.

PRIEST RIVER FOREST EXPERIENCE STATION

Gisborne completed the revision of his fire studies report and spent most of the remainder of the month analyzing weather records. A start was made in coding the several thousand lightning storm reports for Districts 1 and 4.

Wahlenberg completed a report on age classes of western white pine planting stock, incorporating previous experimental work by E. C. Rogers. He also commenced compiling the information on field survival and expects to complete this work during March. This report is expected to provide material for several articles.

Haig completed a card index of permanent and temporary plot locations and descriptions. He also perfected a slide rule method for computing tree heights rapidly and easily, and has written a description of the method for possible publication in the Journal of Forestry. With an office assistant he also partially completed the compilation and height curving for the sample plots measured last season.

Kempff has prepared a report on the Benton Creek Road Project, which at a cost of about $11,000 has opened up the Experimental Forest to real development and better protection. Some time was also given to compilation of the thinning plot measurements and to timber sale activities. Kempff reports considerable violation of the game laws and difficulty in obtaining cooperation from the local game warden. Winter killing of both shrubs and young trees has been very pronounced in the vicinity of the Experiment Station.

Forest Assistant J. N. Diehl, detailed from the Flathead Forest to assist in compiling weather records, completed his six weeks' assignment the end of February. As a result of Diehl's work we have detailed information on the fluctuation of precipitation in this region. Two statistical methods of forecasting probable rainfall have been evolved which tend to check each other and to show very good dependability in forecasting monthly precipitation.

FREMONT FOREST EXPERIMENT STATION

The month has been spent almost wholly in diligent effort applied to the compilation of office records, although Bates spent 5 or 6 days at the station on soil and seed work.

The yellow pine seed-extracting study, though incomplete, is drawing toward a successful conclusion. It has been shown by storage experiments at Fremont that 4 or 5 months of air drying of cones, under cover, will give practically the same seed yields as extraction with artificial heat. It is also shown that there are more distinct limitations and greater dangers in the use of artificial heat with yellow pine than with lodgepole cones. The results so far point to the undesirability of reconstructing the artificial drying plant on the Harney.

The last series of tests on growth in different soil types (T-5) has been the least conclusive of any. It is regretted that time is not available just at present to compile and systematize all the data now available, so that the most profitable line for future procedure could be worked out. However, it is expected to do this before much new work is attempted.

Substantial progress has been made in summarizing the growth rates in different types, the spruce section of the report having been completed. This shows increment rates from 40 to 150 cubic feet per acre-annum in the Engelmann spruce type. There is evidence that higher gross increments can under some conditions be expected after fairly heavy cutting, than before cutting in virgin, stagnated stands. A factor which may affect the result is the lengthening of the growing season, through better warming of the soil after the stands have been opened.

On the contrary, one of the studies (ME-6) conducted by increment borings, in lodgepole pine, shows only about half of the potential capacity of the site is realized even with very good stocking as timber-sale areas go. Here there has been no measurable acceleration of the diameter growth since cutting.

SOUTHWESTERN FOREST EXPERIMENT STATION

Pearson, in the District Office, devoted practically the entire month to his report on forest types. Krauch, working in Flagstaff, has been compiling growth measurements on sample plots. Krauch has also revised a manuscript giving the results of reforestation experiments in northern New Mexico.

DISTRICT 5 - CALIFORNIA DISTRICT

The taper curves for the volume table measurements taken last summer have been completed by Mr. Ayres and the computation of form factors is now in progress.

A new set of diameter growth prediction curves for sugar pine on Site I has been completed, using increment borings taken last summer on a 42-year-old cutting. The curves are found to check very closely with the corresponding set made previously from data secured on the Methods of Cutting plots. A new set of curves for white fir is now being made from similar increment borings. It is hoped that cores enough may be secured next field season to construct more reliable curves for the remaining species and site classes. Checking by a small number of borings by Burnett of the Modoc and Wieslander of the Lassen, indicates that the yellow pine curves for the poorer site qualities made from Mc data are probably considerably too low.

The checking and correction of the Methods of Cutting data for the eight plots at Massack on the Plumas, taken in 1923, is now finished and the report for the second 5-year period is being prepared.

A two-weeks' District conference of administrative men and a two days' Forest Management conference has taken up a few days of Research time.

LIBRARY

During the month of February there were 971 loans of books and periodicals from the library, and 115 members of the Service and others consulted the library in person. The librarian indexed 267 books and articles for the card catalogue last month.

MANUSCRIPT NEWS NOTES

Southern

Hints to Farmers on Leasing Timber for Turpentine Orcharding:

II Depth of Chipping
III Minimum Size of Timber
IV Leasing by the Block or Crop
V Form of Agreement

Lenthall Wyman (Southern Ruralist and other farm journals)

The Southern Forest Experiment Station, Philip C. Wakeley (Cornell Forester)

District 2

Progress reports - Nursery Practice in District 2.
" " - Planting Practice in District 2.
" Report - Planting and Grazing, E. S. Keithley.
" Reports - Grazing in Engelmann spruce, Medicine Bow and Gunnison.

Priest River

Using Weather Forecasts for Predicting Forest Fire Danger.
H. T. Gisborne. (Mon. Wea. Review)

Sowing and Planting Seasons for Western Yellow Pine.
W. H. Wahlenberg. (Galley proof, J. A. R.)

Lake States

Review of Dept. Bulletin 1294. J. A. Mitchell. (American Lumberman.)

District 6

"Germination and Survival of Natural Reproduction on Cut-over Areas in Western Washington," E. J. Hanzlik. (Progress Report.)

Appalachian

Problems of Forest Research in the Southern Appalachian Region. Presented before Appalachian Forest Research Council, Asheville, N.C. February 13. E. H. Frothingham. (Scientific Monthly.)

Mimeographed copies of descriptions of the following plantations (extracts from "Forest Plantations at Biltmore, N. C." 1924): Apiary, Black Walnut, Douglas, Ferry Farm, Long Ridge, Old Orchard, Rice Place, Spruce, and Swannanoa. F. W. Haasis.

Some Ecological Effects of Shading Coniferous Nursery Stock. C. F. Korstian. Ecology 4: 48-51.

Extracts, in Lumber World Review, January 25, 1925, from paper, "Problems of Hardwood Timber Production," Seventh Southern Forestry Congress at Little Rock, Ark., January 20, 1925. E. F. McCarthy.